PROFESSOR WOODROW WILSON delivered an address at the recent susquicentennial anniversary of Princeton University, which contained pointed reference to the energy displayed by the sciences in the field of thought and education at the present time. This reference not only pointed out what the sciences are not competent to do, but was distinctly uncomplimentary in its allusion to supposed evil-effects on the minds of its cultivators, which he characterized as "noxious gases which issue from the laboratory." Whatever Prof. Wilson's private views may be, his expressions in this address did not include those qualifying words which are in place in dealing with the subject from the point of view which is to our mind the broadest and best. If the sciences do not teach the humanities from the side of the ideal and the esthetic, they enforce them in sterner fashion by an exposition of the nature of necessity. We may also admit, that the humanities are not their field in general; but they are none the less beneficial to thought as well as to practical life on that account. The scientific training appears to us to be of inestimable value, as supplying the habit of orderly thought, which must infallibly lead to the truth in whatever field it may be applied. Let the humanities flourish, but let then not decline the aid of the sciences. Together they constitute a working partnership, which embraces the field of human culture, and gives the mind all sides of reality, which includes not only "sweetness" but "light".

RECENT LITERATURE.

Bailey's Survival of the Unlike.[1]—This new book from the facile pen of Professor Bailey consists of essays and papers all of which have been presented elsewhere, and now brought together in accordance with the author's plans. Thus while a collection of essays, it is not without unity. "In making these essays" the author says, "I have constantly had in mind their collection and publication and have, therefore, endeavored to discuss the leading problems associated with the variation and evolution of cultivated plants, in order that the final collection should be somewhat consecutive."

The following quotations from his very suggestful preface will give the reader a general idea of the author's position. "The underlying

[1] *The Survival of the Unlike*, a collection of evolution essays suggested by the study of domestic plants, by L. H. Bailey. New York, The Macmillan Company, 1896, 515 pp., 8vo.

motive of the collection is the emphasis which is placed upon unlikenesses and their survival because they are unlike. The author also denies the common assumption that organic matter was originally endowed with the power of reproducing all its corporeal attributes, or that, in the constitution of things, like produces like. He conceives that heredity is an acquired force, and that, normally or originally, unlike produces unlike." The author's *a priori* reasons for belief in the hypothesis of evolution are "the two facts that there must be a struggle for existence from the mere mathematics of propagation, and that there have been mighty changes in the physical character of the earth, which argue that organisms must either have changed or perished." On the other hand, "the chief demonstrative reason for belief in evolution is the fact that plants and animals can be and are modified profoundly by the care of man."

The body of the book is in three "parts," the first including essays touching the general fact and philosophy of evolution; the second, those expounding the fact and causes of variation; and third, those tracing the evolution of particular types of plants. The first essay gives name to the book. In it the author discusses (1) the nature of the divergences of plants and animals, suggesting the Mycetozoa as the point of divergence; (2) the origin of differences, holding that all plants and animals came from one original life-plasma which had the power of perpetuating its physiological but not its structural identity, no two organisms ever being exactly alike, it follows that unlike produces unlike; (3) the survival of the unlike, this being an extension of our notion of the meaning of the phrase "the survival of the fittest," by showing that the fittest are unlike.

The author gives us some interesting pages on the species dogma, in which he pointedly shows the inconsistency of those who demand experimental evidence of the evolution of a species, and yet reject "horticultural species" because they have been produced under cultivation. Many examples are given of the origination of well marked "varieties" which are much more different from the species from which they sprung than are the recognized species from one another. Here Professor Bailey's experience as a horticulturist enables him to cite striking examples of what the candid reader must admit are good species of beans (Phaseolus), tomato (Lycopersicum), maize (Zea), soy beans (Glycine), etc. The horticulturist who is familiar with the plasticity of plants, and who is accustomed to see new and persistent forms arise, cannot help being an evolutionist, nor can he help being impatient with the botanist who refuses to accept such forms as true varieties or species as

much entitled to recognition as those whose origin we do not happen to know.—CHARLES E. BESSEY.

Prillieux's Diseases of Plants.[2]—Among recent contributions to botanical literature is the first volume of a work on the diseases of agricultural plants including forest and fruit trees by Ed. Prillieux, Professor in the ("Institut National Agronomique," Paris). The work is the outcome of the author's twenty years study and teaching of Economic Vegetable Pathology.

In the introduction the change in the methods of viewing plant diseases is referred to. Instead of trying to trace an anology between human pathology and phytopathology, plant diseases came to be regarded as due to changes of normal physiological functions produced either by unfavorable conditions or by the action of parasitic organisms penetrating the tissues. The placing of phytopathology on a more rational basis is attributed to De Candolle.[3] In this connection Unger[4] might well have been cited.

The author next speaks of the aims and purposes of the work. He says: "If I am able to render the study interesting and intelligible to agriculturists and to all persons living in the country who have received some general knowledge of the structure of plants, I shall have obtained the end I have in view."

In speaking of the difficulties of studying minute parasitic plants he adds: "It seems to be established that such researches present too many difficulties to be carried on by any one who wishes. My greatest desire is to dissipate this belief and to facilitate the beginnings of observers who, living in the country, are able to test on cultivated plants the facts already observed and described, and to examine the parasites in quantity in all their stages of development. If they acquire a taste for these researches they may be able in their turn to add many new facts to science." We believe the many acute investigators who after thorough equipment have spent years in trying to solve some of the problems presented by plant diseases will not think us pessimistic if we venture to predict that the author's hopes regarding the contributions to the life histories of parasitic fungi which he expects from the novice will not be realized. If, however, he succeeds in getting the intelligent farmers to observe carefully the parasitic plants

[2] Prillieux, Ed. *Maladies des Plantes Agricoles et des Arbres fruitiers et Forestiers causées par des parasites végétaux.* Home Premier, Paris, 1895.

[3] De Candolle, Aug.-Pyr. *Physiologie Végétale.* Paris, 1832.

[4] Unger, Franz. *Die Exantheme der Pflanzen.* Wien, 1833.